UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,604	02/08/2002	William A. White III	SAA-74-1	5361

7590 07/28/2004	EXAMINER
SQUARE D COMPANY	TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
2133	

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DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	10/071,604	WHITE ET AL.	
	Examiner	Art Unit	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _18 June 2002_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-44_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-44_ is/are rejected.

7)☒ Claim(s) _29-34_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _08 February 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference character(s) mentioned in the

description: '10' in line 38, page 5; '10' in line 7, page 6; etc. Corrected drawing sheets

are required in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing on the

immediate prior version of the sheet, even if only one figure is being amended. The

replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as

per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

The drawings are objected to because the blocks in the block diagram do not have

descriptive labels in English and because of handwriting. Applicant is advised

to employ the services of a competent patent draftsperson

outside the Office, as the U.S. Patent and Trademark Office no

longer prepares new drawings.   Corrected drawing sheets are required in

reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2.   Claims 7 and 15 are objected to because of the following informalities: Claims 7 and 15 recite, "a residual error probability utilizes rate of deterioration (first time derivative of measured error rate)". Since "first time derivative of measured error rate" is included in parenthesis, it does not further limit claims 7 and 15. Appropriate correction is required.

Claims 30-45 have been renumbered consecutively as claims 29-44 since number 29 was skipped.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3.   Claims 1-3, 5-11, 13-23, 25-31, 33-39 and 41-44 are rejected under 35 U.S.C.

103(a) as being unpatentable over Mangold; Peter et al. (US 5926232 A, hereafter

referred to as Mangold) in view of Wicker (Stephen B. Wicker, "Error Control Systems

for Digital Communication and Storage", Prentice-Hall, 1995, pages 240-243 & 396-

397).

35 U.S.C. 103(a) rejection of claims 1 and 9.

Mangold teaches detecting an error (col. 3, lines 30-36 in Mangold teach that redundant

data is used to detect errors in an error correction system); and, executing a corrective

action related to transmitting messages, the execution being activated in response to

the residual error probability (the Abstract in Mangold teaches that a quality parameter

is measured and in response to the quality parameter, the corrective action of adding

redundancy in response to the quality parameter; Note: claim 7 in Mangold teaches that

the quality parameter is residual error rate, i.e., residual error probability).

However Mangold does not explicitly teach the specific use of calculating a raw bit error

rate and correlating a residual error probability in response to the detected error rate.

Wicker, in an analogous art, teaches that the residual error probability $P_{ub}(E)$ is

correlated to the detected bit error rate $P_{db}(E)$ via equations 10-6 and 10-7 on pages

241-242 of Wicker, which can be used for correlating a residual error probability $P_{ub}(E)$

in response to the detected error rate $P_{db}(E)$. Note: equations 10-6 and 10-7 on pages

241-242 of Wicker are equivalent to: $1 - (1 - p)^n - P_{db}(E) <= P_{ub}(E) <= (1/k)[1 - (1 - p)^n]$

$- P_{db}(E)$, hence residual error probability $P_{ub}(E)$ can is correlated to the detected error

rate $P_{db}(E)$ and can be determined via equations correlating the residual error

probability $P_{ub}(E)$ to the detected error rate $P_{db}(E)$. One of ordinary skill in the art at the

time the invention was made would have been highly motivated to combine the

teachings of Mangold and Wicker in order to implement the teachings in the Mangold

patent since the Mangold patent requires that the residual error probability be available

for use by the adaptive encoder taught in the Mangold patent.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Mangold with the teachings of Wicker by including use of

calculating a raw bit error rate and correlating a residual error probability in response to

the detected error rate. This modification would have been obvious to one of ordinary

skill in the art, at the time the invention was made, because one of ordinary skill in the

art would have recognized that use of calculating a raw bit error rate and correlating a

residual error probability in response to the detected error rate would have provided the

opportunity to implement the teachings in the Mangold patent since the Mangold patent

requires that the residual error probability be available for use by the adaptive encoder

taught in the Mangold patent.

35 U.S.C. 103(a) rejection of claims 2 and 10.

Equation 15-2 on page 396 of Wicker teach that the residual error rate for accepting

packets P(E) is bound by $P_{ub}(E)/(1 - P_{db}(E))$. Note: $P_e = P_{ub}(E)$ and $P_r = P_{db}(E)$.

35 U.S.C. 103(a) rejection of claims 3 and 11.

Changing the error correction code change the length in of the message in a fixed block

transmission system since more redundant bits translates to less message bits.

35 U.S.C. 103(a) rejection of claims 5, 6, 13 and 14.

Mangold and Wicker substantially teaches the claimed invention described in claims 1-

4, 9-12 (as rejected above).

However Mangold and Wicker do not explicitly teach the specific use of Maximum

Likelihood filtering to determine residual error rates.

The Examiner asserts that Mangold and Wicker teach a means for determining residual

error rates, but do not teach specific hardware for determining residual error rates. One

of ordinary skill in the art at the time the invention was made would have been highly

motivated to create a specific hardware means for implementing the design in the

Mangold and Wicker patents.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Mangold and Wicker by including use of

Maximum Likelihood filtering to determine residual error rates. This modification would

have been obvious to one of ordinary skill in the art, at the time the invention was made,

because one of ordinary skill in the art would have recognized that use of Maximum

Likelihood filtering to determine residual error rates would have provided the opportunity

for implementing the design in the Mangold and Wicker patents.

35 U.S.C. 103(a) rejection of claims 7 and 15.

The decision to change error correction codes in Mangold is based on changes in

residual error rates, hence is substantially based on rate of deterioration of the residual

error rates.

35 U.S.C. 103(a) rejection of claims 8 and 16.

Mangold and Wicker substantially teaches the claimed invention described in claims 1-

3, 5-7, 9-11 and 13-16 (as rejected above).

However Mangold and Wicker do not explicitly teach the specific use of a PID.

The Examiner asserts that using a specific part of a packet to determine residual error

rate does not deviate from the scope or the intent of the teachings in Mangold and

Wicker since Mangold and Wicker encompass error correction for any and all parts of

the packet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Mangold and Wicker by including use of

a PID. This modification would have been obvious to one of ordinary skill in the art, at

the time the invention was made, because one of ordinary skill in the art would have

recognized that use of a PID would have provided the opportunity to correct errors in

any or all parts of the packet.

35 U.S.C. 103(a) rejection of claims 17 and 18.

Mangold teaches detecting an error (col. 3, lines 30-36 in Mangold teach that redundant

data is used to detect errors in an error correction system); and, executing a corrective

action related to transmitting messages, the execution being activated in response to

the residual error probability (the Abstract in Mangold teaches that a quality parameter

is measured and in response to the quality parameter, the corrective action of adding

redundancy in response to the quality parameter; Note: claim 7 in Mangold teaches that

the quality parameter is residual error rate, i.e., residual error probability).

However Mangold does not explicitly teach the specific use of calculating a raw bit error

rate and correlating a residual error probability in response to the detected error rate.

Wicker, in an analogous art, teaches that the residual error probability $P_{ub}(E)$ is

correlated to the detected bit error rate $P_{db}(E)$ via equations 10-6 and 10-7 on pages

241-242 of Wicker, which can be used for correlating a residual error probability $P_{ub}(E)$

in response to the detected error rate $P_{db}(E)$. Note: equations 10-6 and 10-7 on pages 241-242 of Wicker are equivalent to: $1 - (1 - p)^n - P_{db}(E) <= P_{ub}(E) <= (1/k)[1 - (1 - p)^n]$ - $P_{db}(E)$, hence residual error probability $P_{ub}(E)$ can is correlated to the detected error rate $P_{db}(E)$ and can be determined via equations correlating the residual error probability $P_{ub}(E)$ to the detected error rate $P_{db}(E)$. One of ordinary skill in the art at the time the invention was made would have been highly motivated to combine the teachings of Mangold and Wicker in order to implement the teachings in the Mangold patent since the Mangold patent requires that the residual error probability be available for use by the adaptive encoder taught in the Mangold patent. Equation 15-2 on page 396 of Wicker teach that the residual error rate for accepting packets $P(E)$ is bound by $P_{ub}(E)/(1 - P_{db}(E))$. Note: $P_e = P_{ub}(E)$ and $P_r = P_{db}(E)$.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mangold with the teachings of Wicker by including use of calculating a raw bit error rate and correlating a residual error probability in response to the detected error rate. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of calculating a raw bit error rate and correlating a residual error probability in response to the detected error rate would have provided the opportunity to implement the teachings in the Mangold patent since the Mangold patent requires that the residual error probability be available for use by the adaptive encoder taught in the Mangold patent.

35 U.S.C. 103(a) rejection of claims 19-21, 29 and 37 (Note: claims 29 and 38

substantially comprises all of the claim language in claims 17-20).

Mangold and Wicker substantially teaches the claimed invention described in claims 17

and 18 (as rejected above).

However Mangold and Wicker do not explicitly teach the specific use of specific

hardware used to determine residual error rates.

The Examiner asserts that Mangold and Wicker teach a means for determining residual

error rates, but do not teach specific hardware for determining residual error rates. One

of ordinary skill in the art at the time the invention was made would have been highly

motivated to create a specific hardware means for implementing the design in the

Mangold and Wicker patents.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Mangold and Wicker by including use of

specific hardware used to determine residual error rates. This modification would have

been obvious to one of ordinary skill in the art, at the time the invention was made,

because one of ordinary skill in the art would have recognized that use of specific

hardware used to determine residual error rates would have provided the opportunity for

implementing the design in the Mangold and Wicker patents.

35 U.S.C. 103(a) rejection of claims 22, 30 and 38.

Equation 15-2 on page 396 of Wicker teach that the residual error rate for accepting

packets P(E) is bound by $P_{ub}(E)/(1 - P_{db}(E))$. Note: $P_e = P_{ub}(E)$ and $P_r = P_{db}(E)$.

35 U.S.C. 103(a) rejection of claims 23, 31 and 39.

Changing the error correction code change the length in of the message in a fixed block

transmission system since more redundant bits translates to less message bits.

35 U.S.C. 103(a) rejection of claims 25, 26, 33, 34, 41 and 42.

Mangold and Wicker substantially teaches the claimed invention described in claims 17-

23 (as rejected above).

However Mangold and Wicker do not explicitly teach the specific use of Maximum

Likelihood filtering to determine residual error rates.

The Examiner asserts that Mangold and Wicker teach a means for determining residual

error rates, but do not teach specific hardware for determining residual error rates. One

of ordinary skill in the art at the time the invention was made would have been highly

motivated to create a specific hardware means for implementing the design in the

Mangold and Wicker patents.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Mangold and Wicker by including use of

Maximum Likelihood filtering to determine residual error rates. This modification would

have been obvious to one of ordinary skill in the art, at the time the invention was made,

because one of ordinary skill in the art would have recognized that use of Maximum

Likelihood filtering to determine residual error rates would have provided the opportunity

for implementing the design in the Mangold and Wicker patents.

35 U.S.C. 103(a) rejection of claims 27, 35 and 43.

The decision to change error correction codes in Mangold is based on changes in

residual error rates, hence is substantially based on rate of deterioration of the residual

error rates.

35 U.S.C. 103(a) rejection of claims 28, 36 and 44.

Mangold and Wicker substantially teaches the claimed invention described in claims 17-

23 and 25-27 (as rejected above).

However Mangold and Wicker do not explicitly teach the specific use of a PID.

The Examiner asserts that using a specific part of a packet to determine residual error

rate does not deviate from the scope or the intent of the teachings in Mangold and

Wicker since Mangold and Wicker encompass error correction for any and all parts of

the packet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Mangold and Wicker by including use of

a PID. This modification would have been obvious to one of ordinary skill in the art, at

the time the invention was made, because one of ordinary skill in the art would have

recognized that use of a PID would have provided the opportunity to correct errors in

any or all parts of the packet.

4.   Claims 4, 12, 24, 32 and 40 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mangold; Peter et al. (US 5926232 A, hereafter referred to as

Mangold) and Wicker (Stephen B. Wicker, "Error Control Systems for Digital

Communication and Storage", Prentice-Hall, 1995, pages 240-243 & 396-397) in view of

Schroeder; Robert Edward et al. (US 5933111 A, hereafter referred to as Schroeder).

35 U.S.C. 103(a) rejection of claims 4, 12, 24, 32 and 40.

Mangold and Wicker substantially teaches the claimed invention described in claims 1-3

(as rejected above).

However Mangold and Wicker do not explicitly teach the specific use of ceasing

transmission of the message.

Schroeder, in an analogous art, teaches ceasing transmission whenever an error

condition that a corrective action cannot overcome occurs (col. 1, lines 55-58 in

Schroeder).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Mangold and Wicker with the teachings of Schroeder by

including use of ceasing transmission of the message. This modification would have

been obvious to one of ordinary skill in the art, at the time the invention was made,

because one of ordinary skill in the art would have recognized that use of ceasing

transmission of the message would have provided the opportunity to abort transmission

whenever an error condition that a corrective action cannot overcome occurs (col. 1,

lines 55-58 in Schroeder).

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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